

Amendments to the Claims:

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A film-formation apparatus, comprising:
a film-formation chamber; and
a source gas supplying apparatus supplying a source gas formed by vaporizing a solid source material or a liquid source material to said film-formation chamber together with a carrier gas via a gas transportation path ,
said source gas supplying apparatus comprising:
a concentration detector detecting a concentration of said source gas in said gas transportation path ; and
a gas flow controller controlling a flow rate of ~~an~~ a diluting inert gas added to said carrier gas based on a result of measurement of said concentration of said source gas obtained by said concentration detector.

2. (currently amended) A film-formation apparatus as claimed in claim 1, wherein said inert gas is added to said diluting carrier gas that is carrying said source gas.

3. (currently amended) A film-formation apparatus as claimed in claim 1, wherein said concentration detector is provided so as to measure said concentration of said source gas in the state said diluting inert gas is added to said carrier gas.

4. (currently amended) A film-formation apparatus as claimed in claim 1, wherein said gas flow controller changes said flow rate of said diluting inert gas added to said carrier gas such that said concentration of said source gas

as measured by said concentration detector falls in a predetermined concentration range.

5. (original) A film-formation apparatus as claimed in claim 1, wherein said concentration detector measures said concentration of said source gas before commencement of a film-formation process and/or during said film-formation process.

6. (currently amended) A film-formation apparatus as claimed in claim 1, wherein said source gas supplying apparatus further includes a switching device switching a flow path of said carrier gas added with said diluting inert gas, between a first path connected to said film-formation chamber and a second path bypassing said film-formation chamber, said concentration detector being provided in one of said first and second flow paths.

7. (currently amended) A film-formation apparatus as claimed in claim 1, wherein said gas flow controller changes a flow rate of said diluting inert gas to be added to said carrier gas, and wherein said gas flow controller further changes a flow rate of said carrier gas such that a total flow rate of said carrier gas and said inert gas is maintained generally constant.

8. (currently amended) A film-formation apparatus as claimed in claim 1, wherein an said carrier gas and said inert gas is supplied to a are introduced from an identical flow path at an upstream side of a source bottle vaporizing said solid source material or said liquid source material , a part of said inert gas in said flow path being then diverted supplied to said source bottle as said carrier gas via said flow path, a remaining part of said inert gas being divided and supplied through to another flow path bypassing said source bottle as said diluting inert gas, before said carrier gas is admixed with said source gas, said inert gas merging again with said flow path of said carrier gas after said carrier gas is admixed with said inert gas said another flow path merging said gas transportation path at a downstream side of said source bottle .

9. (currently amended) A film-formation apparatus as claimed in claim 1, wherein said gas flow controller controls a flow rate of said diluting inert gas in said another flow path.

10. (currently amended) A film-formation apparatus as claimed in claim 1, wherein said source gas is formed by vaporizing a source material of which vapor pressure is less than 266Pa at a temperature at which said source material is used.

11. (original) A film-formation apparatus as claimed in claim 1, wherein said source gas is $W(CO)_6$.

12. (original) A film-formation apparatus as claimed in claim 1, wherein said concentration detector is a Fourier transform infrared spectrometer.

13. (currently amended) A source supplying system of a film-formation apparatus, comprising:

a concentration detector detecting a concentration of said a source gas produced by vaporizing a liquid source material or a solid source material, said source gas being supplied to a processing vessel via a gas transportation path, said concentration detector detecting said concentration of said source gas as said source gas is supplied through said gas transportation path ; and

a gas flow controller controlling a flow rate of an inert gas added to a said carrier gas based on a result of measurement of said concentration of said source gas obtained by said concentration detector.

14. (currently amended) A film-formation apparatus, comprising:
a film-formation chamber; and

a source gas supplying apparatus supplying a source gas produced by vaporizing a liquid source material or a solid source material to said film-

formation chamber together with a carrier gas via a gas ~~passage~~ transportation path in the form of a mixed gas,

said source supplying apparatus comprising:

a gas concentration measurement part measuring the concentration of said source gas contained in said mixed gas and transported through said gas transportation path ~~in said gas passage~~;

a gas concentration controller connected to said gas transportation path ~~passage~~, said gas concentration controller adding an inert gas to said mixed gas in said gas transportation path ~~passage~~; and

an inert-gas flow-rate controller controlling the flow rate of said inert gas added by said gas concentration controller based on a measured concentration of said source gas obtained by said gas concentration measurement part,

said gas concentration measurement part including a manometer for measuring the pressure of said mixed gas in said gas transportation path ~~passage~~, said gas concentration measurement part correcting said measured concentration of said source gas based on a pressure measured by said manometer.

15. (original) A film-formation apparatus as claimed in claim 14, wherein said gas concentration measurement part includes a gas concentration detector that supplies a probe signal to said mixed gas in said gas passage, said gas concentration detector producing a detection signal corresponding to said concentration of said source gas based upon said probe signal passed through said mixed gas,

said gas concentration measurement part further including a signal processing unit correcting said signal obtained by said gas concentration detector by said pressure and calculating an absolute concentration of said source gas in said mixed gas from said signal corrected by said pressure.

16. (original) A film-formation apparatus as claimed in claim 15, wherein said signal processing unit multiplies a correction term, which includes

said pressure of said mixed gas at a denominator, to a value of said signal detected by said gas concentration detector.

17. (original) A film-formation apparatus as claimed in claim 15, wherein said manometer is provided at any of an upstream side and a downstream side of said gas concentration detector.

18. (currently amended) A film-formation apparatus s claimed in claim 14, wherein said concentration measurement part measures said concentration of said source gas in said gas transportation path ~~passage~~ at a downstream side of a location where said inert gas is admixed to said mixed gas.

19. (currently amended) A film-formation apparatus as claimed in claim 14, wherein said concentration measurement part measures said concentration of said source gas in said gas transportation path ~~passage~~ at an upstream side of a location where said inert gas is added to said mixed gas.

20. (original) A film-formation apparatus as claimed in claim 15, wherein said gas concentration detector injects infrared light to said mixed gas and produces said signal based upon an infrared absorption spectrum of said infrared light passed through said mixed gas.

21. (original) A film-formation apparatus as claimed in claim 15, wherein said gas concentration detector comprises a Fourier transform infrared spectrometer.

22. (original) A film-formation apparatus as claimed in claim 14, wherein said gas concentration detector comprises a non-dispersion infrared spectrometer.

23. (currently amended) A film-formation apparatus as claimed in claim 20, wherein said gas concentration detector comprises a mirror disposed in said gas transportation path ~~passage~~ and a heating element heating said mirror.

24. (currently amended) A film-formation apparatus as claimed in claim 14, wherein said mixed gas has a pressure of 1.33kPa or less in said gas transportation path ~~passage~~.

25. (withdrawn) A method of detecting a gas concentration, comprising the steps of:
supplying a mixed gas containing therein a source gas to a flow passage;
measuring the pressure of said mixed gas in said flow passage;
injecting infrared light to said mixed gas in said flow passage;
acquiring an absorption spectrum of said source gas by detecting said infrared light after said infrared light has passed through said mixed gas in said flow passage;
acquiring the concentration of said source gas in said mixed gas by correcting an intensity of said absorption spectrum, said step of correction comprising the step of applying a correction term including therein said pressure.

26. (withdrawn) A method as claimed in claim 25, wherein said correction term includes a term of said pressure at a denominator.

27. (withdrawn) A method as claimed in claim 25, wherein said step of injecting said infrared light is conducted by using an interferometer capable of changing a baseline length and by changing said baseline length.

28. (withdrawn) A method as claimed in claim 25, wherein said step of acquiring said absorption spectrum includes fast Fourier-transform processing.

29. (withdrawn) A method as claimed in claim 25, wherein any of said step of injecting said infrared light and said step of detecting said infrared light includes the step of interrupting said infrared light intermittently at an upstream side, in an optical path of said infrared light, of a detector used for detecting said infrared light.